

THE AMERICAN PHILOSOPHY AND THE PROBLEM OF TIME

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RESUMEN: Este artículo intenta de forma breve poner de relieve los conceptos para comprender el problema del tiempo, temporalidad y continuidad en la Filosofía Americana representada por Ch. Peirce, W. James, y A. N. Whitehead. El estudio también intenta apuntar la importancia de la investigación en el campo del tiempo. Además, aporta un breve panorama de las condiciones históricas de la emergencia de la Filosofía Americana.

PALABRAS CLAVE: Tiempo, Temporalidad, Continuo, concreción, Actualidad, Ch. Peirce, W. James, A. N. Whitehead, Filosofía Americana

ABSTRACT: *The American philosophy and the problem of time* –[article]– attempts to briefly outline the concepts of understanding of the problem of time, temporality and continuity in American philosophy which is represented by Ch. Peirce, W. James, and A. N. Whitehead. The article also tries to point out the importance of the enquiry on the field of time. Further, it gives abbreviated outline of the historic conditions of emergence of the American philosophy.

KEY WORDS: Time, Temporality, Continuum, Concreteness, Actuality; Ch. Peirce, W. James, A. N. Whitehead, American Philosophy.

The time is historically speaking one of the most interesting problems and one the most troubling as well. We can only hardly say that the question concerning the time and its nature has been sufficiently or satisfactorily answered. So the time somehow remains «the best known unknown» to paraphrase St. Augustine. The question about the nature of time is tempting not only for us today, as we are under the constant pressure of a lack of time – or at least we feel it this way. But, how do the American philosophers try to answer this question? What do they say about the nature of time? What does time mean to them? These are questions I try to briefly answer.

The American philosophy and the problem of time is the name of paper in which I try to follow how the American philosophy understands the problem of time; try to open new perspectives of a discourse and evaluation between the European, so called Continental, philosophy and the American philosophy on the field of the problem of time and its understanding; and try to outline briefly the specificity of the American philosophy, how it could be understood, what the roots of it are. These are key problems of the paper I attempt to briefly answer, comprehend and outline within the context not only of history of philosophy for further discussions.

The American philosophy is represented –in my work– by Charles Sanders Peirce (1839–1914), William James (1842–1910), and Alfred Whitehead (1861–1947). As it is clearly visible, even the very choice of these philosophers is interesting, and it is so for couple of reasons. Firstly, neither one of them is a philosopher out of the academic training – Peirce graduated from science and later chemistry (Peirce was the first student who graduated *summa cum laude* in Chemistry from Harvard University in 1863; Hookway 1985: 4); James was physician, a medical doctor; Whitehead was mathematician. Secondly, the choice of these philosophers represents the philosophies, or better said the philosophic movements genuine for the United States. This means that the trio is chosen purposefully for the reason of their contribution to philosophy. In short, Peirce is chosen for the Peircean pragmatism – later on he called it Pragmaticism (by which he tried to highlight the difference of his viewpoint from the James' one); James is chosen for the Radical Empiricism and his viewpoint of Pragmatism (which became influential not only in the beginning of 20th century); and finally Whitehead is chosen for his Processual (or Speculative) philosophy, also known as a philosophy of organism as he calls it. Moreover, all three are connected to Cambridge, Massachusetts, and to the Harvard University. However Whitehead was Briton by nationality and origin (English to be precise, because he was born in Kent) he is traditionally considered as an American philosopher. The reason for this is that his concept of the processual philosophy he finished during his stay on Harvard University and published it as a set of lectures called *Process and Reality*, which became his opus magnum. Subsequently, the processual philosophy found follower on the University of Chicago and later on in Claremont, California. Whitehead's philosophy is by the way closely connected to the pragmatism. He himself thought of William James and John Dewey as they had poured a new life in veins of philosophy (*Analysis of the Meaning*, 1937; in: Whitehead 1970: 50); and in the *Preface to Process and Reality* he says he is indebted to them and notes his attempt to defend their type of thought against the anti-intellectualistic charges. (Whitehead 1969: xii)

In order to be able to open the new perspectives of discourse between the American and Continental philosophy, it is necessary to comprehend the American philosophy (of the chosen philosophers) from its own context of origin. It means that it is necessary to start with understanding the era which influenced the emergence of it, because it bears marks of that time in it.

The period of 1870–1900 is usually called the *Golden age* (according to prosperity both economical and scholarly) or *Gilded age* (as a reflection of serious social problems masked by thin layer of gold to cover and hide them), which is the period of economic boom in the United States after the Civil war. As the whole country was being reformed for the further industrialization, there appeared a necessity to reform the basic institutional fundaments of higher education which had been built on pillars that started crumbling at the weight of not only scientific discoveries – Bertrand Helm listed the seven such pillars as follows: settled natural order; transcendent deity overseeing the order; each person is steered toward a divine destiny; fixed space-time matrix [absolute time]; the theory of natural law; changelessness of the higher education system; and a sure progress in history (Helm: 1985: 2).

These attempts for reformation of the organization led to creation of the Metaphysical Club on Harvard University which was founded by Charles Sanders Peirce, William James, Oliver Wendell Holmes Jr. (an influential jurist), and joined by some other intellectuals of the time such as Chauncey Wright, John Fiske, Francis E. Abbot. Within the sessions of this club the Pragmatism was formulated as a result of the metaphysical proceeding of the club by Peirce and a couple years after published. (CP 5.11-13) Another significant factor for philosophy in the United States is its connection to science (in this case science means mainly the natural science). In the second half of 19th century it was especially the influence of contributions of Charles Darwin – *The Origin of Species* (1859) and *The Descent of Man* (1871) –, Herbert Spencer (and his understanding of society as an organism evolving its complexity according the law of evolution – *First Principles of a New System of Philosophy* (1862), *Principles of Biology* (1864)), and Ernst Mach (simplicity and economy of scientific expressions of facts – because of the richness of the world cannot be perceived without a reduction for the observer’s limited perception capacity /*The Science of Mechanics*: 1882/).

Thus the Pragmatism could be seen – retrospectively and within the frame of its context – as a reformative scientific attitude (or method) emerging from the downfall of the traditional pillars of higher education system in United States. All this makes Pragmatism to be the very first contribution to the history of philosophy which is of the United States’ origin. Of course, it does not mean that the pragmatism emerged out of nowhere. The «pragmatically» –implicitly– oriented philosophies could be found throughout the history of philosophy, but the explicit formulation of pragmatism is from the United States, and I think that this formulation is the best reflection of its era the so-called Golden or Gilded age. (cf. Marsoobian 2004: 35ff.)

As we could see there is no surprise that the focus of the philosophic and scientific enquiry shifted toward the question of the nature of time, temporal processes and to the interrelations of past, present, and future. If we think over the seven pillars all seven of them are embodiment of rigid and motionless entities, but once the stability of the fusty

rigidity is removed, as it happened by the contributions of the science and society of the second half of 19th century, the pillars leave rigidity and become loose – dynamic. For instance these three pillars: the settled natural order could then be seen as a process of struggling for one’s life (dynamic on-going process of surviving); the removal of supernatural entity removes the warrantor of absolute values (the consequence of this is still actual, maybe more and more day by day and so not only in America) and the values become more or less relativistic; and the fixed space-time matrix [the absolute time] if we remove the fixation it becomes a flux, stream, or continuum, and this continuum with

accordance to the scientific discoveries on field of thermodynamics is comprehended to be spearing towards future.

There is much to be said about the historical, cultural and scientific background of philosophy, namely of the American one. The period of interest –say– some eighty years from 1870 till 1950 – is turbulent and full of scientific discoveries both good and bad, and I do not even speak about the Wars. But for the brevity it is time to proceed further. Now, let's proceed to the brief outline of how the chosen philosophers understand the problem of time. Of course there is not a space for the full breakdown of how they cope with and treat the problem of time. But in short I will try to give the account of what I think the main points are.

The philosophical perspective of Charles Sanders Peirce comes from the study of Kant, as he says: «I [...] had come upon the threshing-floor of philosophy through the doorway of Kant...» (The third paragraph of the Preface of the V. vol. of CP called *Historical Affinities and Genesis*, CP 5.12) and from the criticism of Descartes and Cartesianism (to this topic there are two main papers of early Peirce: *Questions Concerning Certain Faculties Claimed for Man* [1868], CP 5.213-263, and *Some Consequences of Four Incapacities* [1868], CP 5.264-317) –his criticism is one of the cornerstones of his semiotics that later gave birth to his *Phanerescopy* that is also known as *Phenomenology*– it is similar and earlier project to Husserl's Phenomenology. (cf. Hookway 1985: 3; Misak 2004: 1f) So how does Peirce understand the question of time?

First of all it is necessary to note that Peirce's universe is *synechistic* (synechism is Peirce's name for the continuity, deploying it from Greek word συνέχειν (συν- –together; ἔχειν – to have) this word was used by Aristotle in his *Physics* and *Metaphysics* in which the word means 'to hold together' and from which there is an adjective derivate συνέχης in the meaning of 'holding together, continuous' [from Latin con-tinēre which is the literal translation of the Greek word]). The synechism (or continuity) is the basic principle allowing an existence to be existent. In other words, the continuity allows the potentiality of existence (that is also continuity within time and space) to emerge into being – 'to exist' means to stand out in time as an actual event, thus it is being in time.

Consequently, he sees the time as a continuum as well. Then, the synechism –as he develops it in the essay *The Law of Mind* (1892; CP 6.102-163)– is connected to a mind and this connection makes it possible to notice the direction of the time, because the Law itself is formulated «...that ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectibility. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas». (CP 6.104) The mind is thus copying the continuity of universe, so «our awareness of time is mind-dependent, but the fact of time is not». (Helm: 1985: 24) Peirce explains it that «consciousness essentially occupies time; and what is present to the mind at any ordinary instant is what is present during a moment in which that instant occurs. Thus, the present is half past and half to come. [...] my immediate feeling is my feeling through an infinitesimal duration containing the present instant». (CP 6.126) The present instant of infinitesimal duration does not have any independent existence (the present instant is then mere abstraction), because we are not able to grasp it or seize it. Every time the mind tries it its attempt covers a certain duration of time that moves this instant to the past –so reflection can never be immediate and the actuality of the instant is thus a matter of near past (to say it other words, 'to be present' could be transformed to 'to have become' – to highlight the near-past shift) and it falls deeper and creates a memory and

thus it loses the power of affection for the presence and gains generality; the farther it is, the looser the connection is. Similarly, Peirce understands the future as *possible* (might or might not become fact) and *necessary* (as if following a certain law) from the perspective of the present instant. The farther the future we imagine, the less definite it seems to be; the segment of future – which he calls ‘remote future’ – is technically indefinite and cannot be fully realized. (CP 2.148 – *Why Study Logic* §5)

The present for Peirce thus joints the pressure of two elements in a continual flow: (a) the potential of future which brings the final causation for motivating and helping the determination of what the future will or better can be like; and (b) the efficacy and facticity of the past which help creating the anticipation by its reflective character and thus allows future to come. So the present emerges from this entangled interplay of the overlapping pressure between the elements influencing each other, or, as Peirce himself says: «The future is suggested by, or rather is influenced by the suggestions of, the past». (CP 6.142)

What does this mean for a human being? Within this brief outline how Peirce understands the problem of time is one important thing missing. The thing, if we talk about the mind, is the life of a human. Why is this so important? Because the mortality of human being brings the ultimate, finite, final borderline –the limit– to the infinite number of chances and probabilities –in this perspective every human being can be seen, and Peirce does see it this way, as a set of choices and his risks– and also it creates the limit to a number of our potentially doable possibilities. Consequently, the death limits the future of a man, this means the man have to make his choices according to his decisions which spring out of his past experience and anticipations of future, in other words *belief* –in the present and according to his/her understanding (past) of advantageousness and effects (future) for him/her. This could be understood as a temporal interpretation of the pragmatic maxim (from the paper *How to Make Ideas Clear*, 1878): «Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object». (CP 5.402)

Although, Peirce’s understanding of time and his philosophical thinking in general are really impressive and interesting, we now need to proceed further to the outline of William James’ understanding of the problem of time. William James was a close friend to Peirce, and it was James who is the one responsible for popularization of the Pragmatism – thanks to his lectures called *Pragmatism: A New Name for Some Old Ways of Thinking* (1907). But how does James grasp the problem of time?

The James’ vision of the Universe is pluralistic in general. The pluralism is outcome of his Radical empiricist point of view that is based on interconnectedness of the individuals participating within the continuum of reality and it is only one of its features – this means the time is not absolute, but the times are, because nature does not have only one time. There is visible the interconnectedness of the individuals, because the real time comes in drops and it is not fixed, the drops are qualitative and individual –unique and incommensurable (dissimilar to each other) [they might remind us of Leibnitz’s monades]. As James puts it, «the times directly *felt* in the experiences of living subjects have originally no common measure». (James 1909: 231f) Here comes the consciousness of the subject into play. The role of the consciousness is to draw things together and add an inner cohesiveness to them and thus time and space provide the ground for external relations, whereas the stream of consciousness provides the ground for the internal. The

time perception of an individual –or lived presence– gives to the individual a chance to think the time. In other words, there can be no time thought without one having been felt therefore the thought time is an abstraction from the time the individual experienced. The time perception, in a sequence or rather in a continuity of feeling(s) and then thinking, points out the James' thought and concept of the Radical empiricism –because the only time existent is the time felt and felt by the subject capable of feeling it or living it.

The lived presence then has to have an indefinite duration, which creates a shadow called the thought or conceived time. This is the reason why he says: «...the practically cognized present is no knife-edge, but a saddle-back, with a certain breadth of its own on which we sit perched, and from which we look in two directions into time». (James 1890: 609) He understands the lived presence as a duration containing both a bit of past and a bit of future –a hold of the 'before' and an anticipation of the 'after'–and this duration is happening within limits James calls 'fringes' (an outer edge, margin, periphery). The fringes, though, are not strictly defined or limited, and yet they maintain the unity of perception of changes in the stream of consciousness. They give to the lived presence the horizons within which it is possible to comprehend it as a synthetic unity of past or before-feeling which is still present –held–, the present duration, and arriving futural or after-feeling of anticipated as a blurred end of it. (James 1890: 258ff)

The lived time is not a general or conceptual time, it is subjective time –this point plays a crucial importance for the society and its sustainability– because, if the only time that should matter is the lived time then there is a necessity to have a time, calibrated, conventional, which is not directly lived and in which some of the personal time has to be sacrificed in the favor of this time allowing us to cohabitate. Without this time it would be only hardly possible to synchronize the continuity of each individual time drop –or let's say each temporality (to use Husserlian word, because the lived time is similar to Husserl's understanding of temporality) –with the others. This public time, a consequence of pluralistic temporality –Aristotelian in its nature –is thus rather a social contract allowing us to fulfill the nature of individual within the society. So this time arises from the lived time, but whereas the lived time is continuous, the conceptual time is discontinuous, because the attention divides the stream of consciousness and thus decomposes the whole of it. Technically, the attention puts stop points into the continuum by which it dissolves its continuity and allows the counting of the time –to measure it in the sense of quantity, by this action it loses the qualitative dimension– and thus to compare these measured intervals with the intervals of other individuals. (Helm 1985: 45ff)

James' concept of time, despite being built on the basis of his psychology and radical empiricism nicely fits in the pragmatic concept. Because his image of the time goes hand in hand with his interpretation of the pragmatic maxim, in which he states that the decision should be taken according to what cash-value the decision could bring. In other word, it is necessary to think about the possibilities of a decision in the lived (decisive) presence at ground of the past experience and experiences but oriented towards the future gain from this decision.

In a certain sense similar to James' understanding of time is the concept of time by Alfred N. Whitehead, but the Whitehead's concept is much more complex it is caused by his mathematical and scientific background and he also formulated an alternative to the Einstein's Theory of relativity (*The principle of Relativity*, 1922). So here I am going to briefly outline in abbreviation his concept of time which is based on his philosophic writings (*Science and the Modern World*, 1925; *Symbolism its Meaning and Effect*, 1927;

Process and Reality, 1929; *Adventure of Ideas*, 1933) and his philosophy called the Philosophy of organism or the Processual philosophy that in a part could be understood as a successor of pragmatic thoughts developed further by Whitehead.

His organic concept of the nature –could be understood as rather metaphysical in its nature– is based on the understanding of the Universe as a dynamic process. This process is constituted out of *actual entities* or *actual occasions* – which is the same thing. The actual entities are constant in their *becoming* ('being' of this entity is constituted by its 'becoming') and *perishing* after which they leave a track of their existence in the world. These actual entities *correlate* to each other in sets in which they create a unity based on the *prehensions* of each other a thus they *realize* or *objectify* their *potential* for being an element in a real *concrescence* (the production of novel togetherness – the basic and the most important metaphysical principle of Whitehead's concept). The set of these entities is called *nexus* (pl. *-nexūs*). Every actual entity has its *endurance*, according to which is defined from the space, and yet still the duration of the endurance remains within its space-time continuum, where the entity or *pattern* (a result of concrescence) protrudes as a temporal entity out of *eternal objects* –the pure potential, realized in actual entity. This actual entity is *immediately* (im-mediately –without any mediating factor) present with simultaneous entities. But the simultaneity in *presentational immediacy* does not give any information about the entity's past and future. (Whitehead 1969: 18-28; 61-65) The immediacy rather signifies a cross-section between the present and future but without any hint in what direction is which part. On the other hand, there is a *symbolic reference* which connects both the causality and the actuality, and «the result of symbolic reference is what the actual world is for us, as that datum in our experience productive of feelings, emotions [...], as the topic for conscious recognition when our mentality intervenes with its conceptual analysis». (Whitehead 1927: 18n)

The symbolic reference is thus the result of experience of a man with the world. The symbolic reference and the presentational immediacy bring us to the point where we can see the multitude of the temporal systems. In these systems, it is not necessary that the occasions or events are happening at the same time, simultaneously. The multitude presupposes a synthesis of relations of the set of members allowing them to emerge in the way they are. This means that the time in this sense has to be taken as epochal in the locus of actual entity, because the multitude of events atomizes them in the continuum of the world. This continuum makes up the real potentiality, and thus allows every event to become and within the context of this continuum every event is epochal by its endurance. Simultaneous events do not have to be causally dependent on one another, because their pasts (histories) differ and are dependent on their own individual processes of self-realization, in realization (objectification) of their potentialities towards actualization of themselves.

The processes of the experience creates realities of the universe containing past and future including abstract potentialities in their realization. Therefore, the consciousness of a man (*ego*) is conscious of what is *now* and *here* (con-scire –'to share the knowledge with' is nice link to be aware of simultaneity of myself *ego* which is *now* and *here*) as a result of lived interconnectedness between realities and ideas. So every event is seen from the perspective of the observer.

The sets of actual events are held together by their immanent relatedness to each other and they are bound together in connections – *nexūs*. The presence is thus created from past acts that are objectively present in it. And the future is immanent in the present, by

which the future gives a sense to the present, because in the present it comes to a process from reenaction (activation in recalling) to anticipation in which the self-completing comes and is constituted by the acquisition of novel content. The future is immanent in the present in the sense of future relations and by anticipating them the present is customizing the future. (Whitehead 1967: 191ff; 1946: 136ff)

Conclusion

The discoveries on the field of natural science (has) had a deep impact on the development of the thought in the United States and thus it bestowed the philosophy with its specificity, which is clearly perceivable and representable by the shift from the absolute to dynamic understanding of the world. This specificity is reflected in the philosophic concepts of all three of the chosen philosophers. As it is exposed, for instance in how they understand of the continuity, as it was outlined.

Pierce's synechistic universe allowing existence to exist –to be in time in which the existence could become the concrete one, according to its (existence's) choices which existence evaluates. For human being –existence– there is a limitation of death that limits the countlessness of the number of choices to the indefinite, and yet finite, number of choices within this limitation of human's temporal existence. In this frame the present could be recognized as the postponed present into the near past that influences future, because it is based on moment of taking risks in decision which create the set called existence. Thus it is interplay of the past experience and future expectance in present which emerges out of this overlap.

The James's pluralistic view of the Universe also works with the continuity. The continuity of the conceptual time which he does not see as absolute, since the emergence of the conceptual time is conditioned by pluralism of temporalities whose time is for James absolute –because it is lived–, and their need of having it for their cohabitation. For this conceptual time the temporalities, having the absolute time, are willing to sacrifice a part of their lived time, because it brings to them more benefit –it is worth it, not only for the preservation of the kind.

And finally, Whitehead uses the absolute continuum of potential which allows the actual entities to objectify themselves and thus existence. These actual entities or occasions within it tend to the concrescence with one another in order to create novelty. The universe is process of becoming and ceasing. Consequently, the time is understood as an epochs in simultaneity of happening of the actual events. The potential thus holds this on-going process together as the continuum. And every experience of this sense is for a human mind by the symbolic reference, in which the mind connects causality and actuality into coherent stream, what the world is for the human –it is a synthesis the human calls his world.

Even though all three of the considered philosophers differ in understanding of the time and continuity, they all share the understanding that the entities are being temporarily realized on the background of continuum. The continuum allows the entities to emerge out of their realized potentialities which they have in this continuum. The entities are continua within this continuum which the entities share. So the decisions create the (actual, concrete) entity by allowing it to become what or how it is from its possibility – the interaction on such field necessitates each entity with coping with one another, to face

each other, and think about the effects of its decisions that influences not only the entity alone but the other entities as well.

I would like to close this paper with a short contemplation about the importance of the interest in the problem of time. The question «why is time so important?» is a tricky one. Because as we have seen whatever we do it elapses some time – as James put it. We, people, are here on the world for a limited time, it means, we are temporal beings, limited by our death that puts an end to our efforts and acts. This limitation puts us under the pressure which becomes noticeable in the feeling of lacking the time for conduction of our plans. This pressure has a source in paying attention, or better to put it, in employing our attention to matters that do not worth it. I purposefully used the word ‘to employ’, because the meaning of this word has a deeper meaning then just ‘to have a job’, the meaning is closer to its Latin relative *im-plicāre* which means ‘to enfold, entangle, in-wrap, embrace, or also grasp’, and it has many other meanings, but generally the meanings could be described as ‘a reformation for gaining a bigger density’. For instance: ‘to ploy’ (which is the root of the word) in military means to move scattered troops into a column – again gaining bigger density.

So employing our attention or consciousness means to make it spend some of our ‘precious’ time on coping with the matter of its employment. Here the two faces of time become visible, because the time is not only ontological term, but it is also a deeply ethical problem. Why? Because we must choose and our choices we try to make according to what we understand as the best possible option for us, and here both the pragmatic-processual and Husserl-Heideggerian phenomenologies go hand in hand. Because, the entities, which make our-selves to be ourselves, are the choices we make, and by them we can have an influence on the others and vice versa. This point is actually double-edge sword, on one hand, it can have a pedagogical effect and by influencing we can teach the others what is good, and on the other, there is a directed affecting of the choices and creation of *seemingly needs* (those are not needs in the proper meaning of the word) only for gaining profit of those who have created them.

So the problem of time is crucial the same way for our age as it was for the previous times. And as I hope, now, it is more visible that the problem of time is still lively, and that it should become of a deeper and more serious interest in these days. The enquiry on the field of time is more needed nowadays (maybe than ever before) because if «the time is the stuff the life is made of», as Benjamin Franklin said, then we should care about it. Because, if our time is employed to pointless cases and our attention full of them, then we are losing the time and in this sense we are losing parts of our lives that are made of it. And thus we are losing ourselves. So the enquiry of time is in essence the enquiry of us.

References

- JAMES, WILLIAM (1909): *A Pluralistic Universe*. New York: Longmans, Green.
- JAMES, WILLIAM (1912): *Essays in radical empiricism*. London: Longmans Green.
- JAMES, WILLIAM (1890): *The principles of psychology*. New York: Holt and Company. American science series. Advanced course.
- JAMES, WILLIAM (1907): *Pragmatism: a new name for some old ways of thinking : popular lectures on philosophy*. New York: Longmans, Green.
- JAMES, WILLIAM (2003): *Pragmatismus: nové jméno pro staré způsoby myšlení*. Brno: Centrum pro studium demokracie a kultury (CDK).
- PEIRCE, CHARLES SANDERS. *Collected papers of Charles Sanders Peirce. vol 1-8*. Hartshorne, Ch., Wiess P., Burkes M. (ed.) (1931–1958): Cambridge, MA: Harvard University Press,.
- WHITEHEAD, ALFRED NORTH (1967): *Adventure of ideas*. Cambridge: University Press.
- WHITEHEAD, ALFRED NORTH (1970): *Matematika a dobro a jiné eseje*. Praha: Mladá fronta. Váhy (Mladá fronta).
- WHITEHEAD, ALFRED NORTH (1969): *Process and reality*. New York: The Free Press.
- WHITEHEAD, ALFRED NORTH (1946): *Science and the modern world*. New York: New American Library.
- WHITEHEAD, ALFRED NORTH (1927): *Symbolism, Its Meaning and Effect*. New York: Macmillan Co.
- HELM, BERTRAND P. (1985): *Time and reality in American philosophy*. Amherst: University of Massachusetts Press.
- HOOKEY, CHRISTOPHER (1985): *Peirce*. Boston: Routledge & Kegan Paul.
- MARSOOBIAN, ARMAN; RYDER JOHN (Eds.) (2004). *The Blackwell guide to American philosophy*. Malden, MA: Blackwell Pub.
- MISAK CHERYL (Ed.) (2004): *The Cambridge Companion to Peirce*. New York: Cambridge University Press.